AFCTN Test Report 94-083

AFCTB-ID 94-092
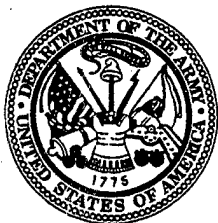
Technical Raster Transfer

Using:

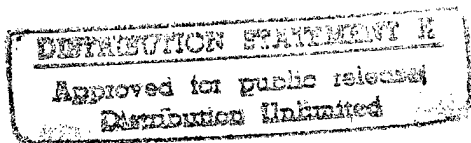# OC-ALC/TILDOS EDCARS' Data

MIL-R-28002A (Raster)

Quick Short Test Report

24 June 1994

19960822 114

DTIC QUALITY INSPECTED 3

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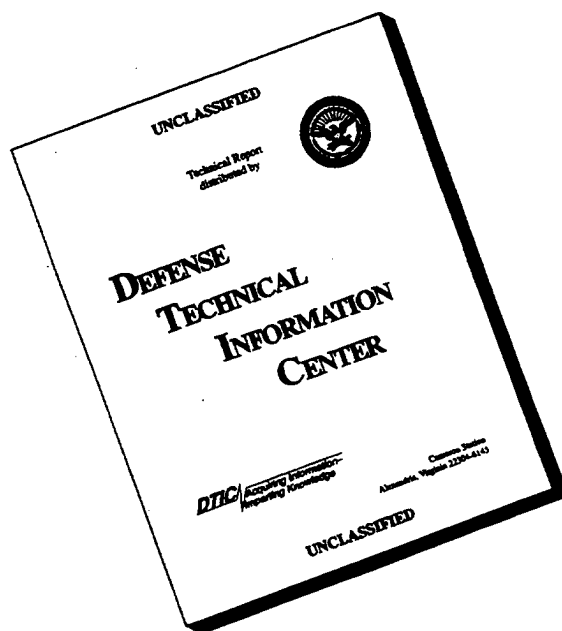
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Technical Raster Transfer

Using:
OC-ALC/TILDOS EDCARS' Data

MIL-STD-1840A
MIL-R-28002A (Raster)

Quick Short Test Report

24 June 1994

Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

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Air Force CALS Test Bed

Notification of Test Results

22 July 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

O'Neil & Associates, Inc.

Identified as follows:

Title:	**Technical Publication TO 12R2-2A-1661**
Program:	**MILSTAR**
Program Office:	**ESC/MSL**
Contract No.:	**F19628-89-C-0131**
QSTR No.:	**AFCTB-ID 94-096**

Received on the following media: **9-Track Tape**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard:	**Fail**
MIL-STD-1840A Media Format:	**Fail**
MIL-D-28000A IGES:	**Fail**
MIL-M-28001B SGML:	**Fail**
MIL-R-28002A Raster:	**Pass**
MIL-D-28003 CGM:	**Pass**

Formal results with associated disclaimer are documented and available from the AFCTB.

Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze OC-ALC/TILDOS' interpretation and use of the CALS standards in transferring technical Raster data. OC-ALC/ TILDOS used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on two 9-track magnetic tapes.

The stated purpose of the test was to determine the source of errors that prevented the tapes from being read by the EDCARS system.

2. Test Parameters

Test Plan: AFCTB 94-092

Date of
Evaluation: 24 June 1994

Evaluator: George Elwood
                                  Air Force CALS Test Bed
                                  DET 2 HQ ESC/AV-2P
                                  4027 Colonel Glenn Hwy
                                  Suite 300
                                  Dayton OH 45431-1672

Data
Originator: Lisa F. Maranon
                                  OC-ALC/TILDOS
                                  3001 Staff Dr
                                  Tinker AFB OK 73145-3041
                                  (405) 736-2336
                                  (DSN) 336-2336

Data
Description: Technical Raster Test
                                          5 Raster files

Data
Source System:
            1840

                        HARDWARE
                                  HP Apollo
                        SOFTWARE
                                  Auto-trol

            Raster
                        HARDWARE
                                  HP Apollo
                        SOFTWARE
                                  Auto-trol

Evaluation Tools Used:

        MIL-STD-1840A (TAPE)
            SUN 3/280
                AFCTN *Tapetool v1.2.10 UNIX*
                XSoft *CAPS/CALS v40.4*
            PC 486/50
                AFCTN *Tapetool v1.2.10 DOS*

        MIL-R-28002 (Raster)
            HP 735
                InterCAP *X-Change v7.82*
            SUN SparcStation 2
                Carberry *CADLeaf Plus v3.1*
                AFCTN *validg4*
                AFCTN *xrastb.sun4*
                IGES Data Analysis (IDA) *IGESView v3.0*
            PC 486
                Inset Systems *HiJaak v2.1*
                Expert Graphics *RxHighlight v1.0*

Standards
Tested: MIL-STD-1840A
                   MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tapes arrived at the Air Force CALS Test Bed (AFCTB) en-
closed in a box in accordance with ASTM D 3951. The exte-
rior of the box was not marked with a magnetic tape warning
label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tapes were not enclosed in a barrier bag or barrier
sheet material as required by MIL-STD-1840A, para. 5.3.1.2.
One of the tape's reel was missing the label indicating the
recording density, as required by MIL-STD1-840A, para.
5.3.1. Some 9-track tape units require this BPI to be set
manually. The packing lists showing all files recorded on
the tapes were missing.

3.2 Transmission Envelope

The 9-track tapes received by the AFCTB contained MIL-STD-
1840A files. The files were named per the standard conven-
tions.

3.2.1 Tape Formats

The first tape, marked from Boeing, was run through the
AFCTN *Tapetool v1.2.10* utility. Eleven notes were reported
while evaluating the contents of the tape labels. Four were
"Invalid record size encountered" errors, and seven were
partial block notes. All of the errors are shown in Appen-
dix A, Section One and Two, of the Tape Import Log.

Four of the notes related to the tape label Record Length
field for Type D files. Type D files contain variable
length records that do not span blocks. All of the Type D
files written on the tape were flagged with an illegal value
for Record Length. The D001 file was expected to be Type D
according to MIL-STD-1840A. The AFCTN Tapetool Software is
expecting a value of 260 in the Record Length field but
encountered a record length of 256. MIL-STD-1840A para.
5.2.1.3 requires the variable record size to be a maximum of
256 bytes. ANSI X3.27 para. 7.2.3 further states that the

length of a Record Control Word (RCW) must be included in a Measured Data Unit (MDU) record length computation. This adds four bytes to the 256 for an MDU total of 260 bytes. ANSI X3.27 para. 8.5.2.6 states that the Record Length field for Type D files shall contain the maximum length of an MDU. While MIL-STD-1840A permits variable length records. Some software programs are sensitive to the number 260 because it is used to limit the record size when unblocking data. Some systems need this value to declare the maximum allowable record size as an attribute of a file when it is created.

A note was reported on the tape label version. MIL-STD-1840A permits the use of both version three and four. The use of the most current standard should be used and noted.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

Additional notes were generated on all files for incomplete last block. All fixed length blocks should be padded to the end of the physical block with the "^" character. The note record in the Document Declaration file should have been filled with the space character. Some drive units will not process an incomplete block.

```
*** NOTE - Last block was incomplete. Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 768, Block Number => 37
```

The physical structure of the first tape meets the requirements defined in MIL-STD-1840A.

When the second tape was read, *Tapetool* reported the structure was not valid. An attempt was made to read it using the UNIX system. The tape dump command showed that nothing of value was written on the tape. Shown below is the ASCII dump of all the information written on the tape.

qCASppupaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaHDYqDppqaaaaa

aaaaaaaaaCASppupppqpppqpppppppaytqquayuq

quppppppaaaaaaaaaaaaaaaaaaaaaaHDYrFprptxppruvaaaaaaaaaaaaaaaaaaaaaaaaaaaBaaaaaaaaaaaaaaaaaaaaaaaa

aaaaaaaaaaaaaaaaaaaa%"

"("zaE"ab("#kabT`ASCacISAAkasrppaWaf(kab$#aqkaTC

aAFBkaCA@yuvurqvaWHa^8q^7`^7s%EVFqDppqaaaaaaaaaa

aaaCASppupppqpppqppEDr^0^8aF^gaxqw`wsw`qvpu

pppaytqquayuqqupppppppqaaaaaaaaaaaaaaaaaaaaaEVFrFprptxppruvaaaaaaaaaaaaaaaaaaaaaaaaaaaBaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaHDYqDp
pqYppqaaaaaaaaaCASppupppqpppqppp
pppaytqquayuqqupppppppaaaaaaaaaaaaaaaaaaaaaHDYrFprptxppqrxaaaaaaaaaaaaaaaaaaaaaaaaaaaBaaaaaaaaaa
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
wpaftb2% ls

The second tape does not meet the requirements defined in MIL-STD-1840A, and no further evaluations were made on this tape.

3.2.2 Declaration and Header Fields

Two errors were found in the Document Declaration file and data file headers. In Document Declaration File D001, an invalid change level was flagged. MIL-STD-1840A, para. 5.1.1.2 shows the change level as "ORIGINAL". The reported value was "NONE". The second error relates to no value being inserted in the dteisu record. This must contain the date written on the tape.

```
chglvl: NONE
*** ERROR (MIL-STD-1840A; 5.1.1.2) - Invalid change level encountered.
*** NOTE (MIL-STD-1840A; 5.1.1.2) - Change level should be the word ORIGINAL
    or a Revision Number followed by a Change Level Number followed by
    a Change Level Date.  They should be separated by a comma or space.
dteisu: NONE
*** ERROR (MIL-STD-1840A; 5.1.1.2) - Invalid date format encountered.
*** NOTE (MIL-STD-1840A; 5.1.1.2) - Date Format shall be a four digit year
    followed by a two digit month followed by a two digit day.
```

Because of the errors in the Document Declaration header file, the tape does not meet the requirements defined in MIL-STD-1840A.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included in this evaluation.

6. Raster Analysis

The first tape contained five Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported all five files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. No problems were noted.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The Raster files were read into Carberry's *CADLeaf* software and displayed without a reported error.

The files were read and displayed using IDA's *CALSView* without a reported error.

The files were read into and displayed using IDA's *IGESView* and *IGESView for Windows* without a reported error.

The files were read into Inset Systems' *HiJaak for Windows* without a reported error. File D001R001 was printed.

The files were read using InterCAP's *X-Change* without a reported error.

The Raster files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into Rosetta Technologies' *Preview*, displayed and printed.

The Raster files were imported into Expert Graphics' *Rx-Highlight* and displayed without a reported error. File D001R002 was printed.

The Raster files, on tape one, meet the CALS MIL-R-28002A specificaton.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included in this evaluation.

8. Conclusions and Recommendations

The physical structure of the first tape from OC-ALC/TILDOS meets the requirements defined in MIL-STD-1840A. The Document Declaration file on this tape had two reported errors and does not meet the requirements defined in MIL-STD-1840A.

The second tape was not a valid tape and contained no usable data. It does not meet the CALS MIL-STD-1840A requirements.

The Raster files, on tape one, meet the CALS MIL-R-28002A specification.

The tapes submitted by OC-ALC/TILDOS do not meet the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

```
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                          for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII
```

Fri Jun 24 10:55:30 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set077

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00256	02048/000001	Extracted

```
*** NOTE (MIL-STD-1840A; 5.2.1.3) - Unexpected maximum variable record size
    encountered. Header => 256, Expected => 260
*** NOTE (ANSI X3.27; 8.5.2.6) - Record Length for Recording Format Type D
    shall be the maximum length of a Measured Data Unit (MDU).
*** NOTE (ANSI X3.27; 7.2.3) - A variable length record shall be contained
    in an MDU. An MDU consists of a four byte Record Control Word (RCW)
    followed immediately by the variable record.
*** NOTE (ANSI X3.4) - A Record Control Word shall consist of four characters
    that express the sum of the lengths of the RCW and the variable record.
```

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001R001	Raster	F/00128	02048/000037	Extracted
D001R002	Raster	F/00128	02048/000018	Extracted
D001R003	Raster	F/00128	02048/000018	Extracted
D001R004	Raster	F/00128	02048/000012	Extracted
D001R005	Raster	F/00128	02048/000007	Extracted

Catalog Process terminated with 0 error(s), 0 warning(s), and 4 note(s).

9.2   Tape Evaluation Log

CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 24 10:55:24 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1ATTC01   3

  Label Identifier: VOL1
  Volume Identifier: ATTC01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 3

*** NOTE (ANSI X3.27; 8.3.1.8) - The Label Standard Version should be 4 to
    represent the current level of ANSI X3.27.

HDR1D001   00010001000100 94062 94062 000000

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier:
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 94062
  Expiration Date: 94062
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800256   00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00256
  Offset Length: 00

*********** Tape Mark ***************

  Actual Block Size Found = 375 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
   proned to be interpreted as noise by some tape drives.
   Tape Label => 2048, Actual => 375, Block Number => 1

  Number of data blocks read = 1.

*********** Tape Mark ***************

EOF1D001   00010001000100 94062 94062 000001

                   <<<<< PART OF LOG FILE REMOVED HERE >>>>>

*********** Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
   proned to be interpreted as noise by some tape drives.
   Tape Label => 2048, Actual => 768, Block Number => 37

  Number of data blocks read = 37.

*********** Tape Mark ***************

EOF1D001R001   00010002000100 94062 94062 000037

                   <<<<< PART OF LOG FILE REMOVED HERE >>>>>

*********** Tape Mark ***************

Actual Block Size Found = 2048 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 896, Block Number => 18

Number of data blocks read = 18.

************ Tape Mark ***************

EOF1D001R002   00010003000100 94062 94062 000018
                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

************ Tape Mark ***************

Actual Block Size Found = 2048 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 256, Block Number => 18

Number of data blocks read = 18.

************ Tape Mark ***************

EOF1D001R003   00010004000100 94062 94062 000018

                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

************ Tape Mark ***************

Actual Block Size Found = 2048 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 1536, Block Number => 12

Number of data blocks read = 12.

************ Tape Mark ***************

EOF1D001R004   00010005000100 94062 94062 000012

   Label Identifier: EOF1
   File Identifier: D001R004
   File Set Identifier:
   File Section Number: 0001
   File Sequence Number: 0005
   Generation Number: 0001
   Generation Version Number: 00
   Creation Date: 94062
   Expiration Date: 94062
   File Accessibility:
   Block Count: 000012
   Implementation Identifier:

EOF2F0204800128   00

   Label Identifier: EOF2
   Recording Format: F
   Block Length: 02048
   Record Length: 00128
   Offset Length: 00

*********** Tape Mark ***************

HDR1D001R005   00010006000100 94062 94062 000000

   Label Identifier: HDR1
   File Identifier: D001R005
   File Set Identifier:
   File Section Number: 0001
   File Sequence Number: 0006
   Generation Number: 0001
   Generation Version Number: 00
   Creation Date: 94062
   Expiration Date: 94062
   File Accessibility:
   Block Count: 000000
   Implementation Identifier:

HDR2F0204800128   00

   Label Identifier: HDR2
   Recording Format: F
   Block Length: 02048
   Record Length: 00128
   Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

*** NOTE - Last block was incomplete. Short blocks are
    proned to be interpreted as noise by some tape drives.
    Tape Label => 2048, Actual => 1152, Block Number => 7

  Number of data blocks read = 7.

************ Tape Mark ***************

EOF1D001R005   00010006000100 94062 94062 000007

  Label Identifier: EOF1
  File Identifier: D001R005
  File Set Identifier:
  File Section Number: 0001
  File Sequence Number: 0006
  Generation Number: 0001
  Generation Version Number: 00
  Creation Date: 94062
  Expiration Date: 94062
  File Accessibility:
  Block Count: 000007
  Implementation Identifier:

EOF2F0204800128   00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

************ Tape Mark ***************

########### End of Volume ATTC01 ##############

########### End Of Tape File Set ##############

Deallocating /dev/rmt0...

Tape Import Process terminated with 0 error(s), 0 warning(s),
and 7 note(s).

9.3 Tape File Set Validation Log

CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri Jun 24 10:55:30 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set077

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Boeing Test
srcdocid: MIL-STD-1840A Sample Raster Images
srcrelid: NONE
chglvl: NONE
*** ERROR (MIL-STD-1840A; 5.1.1.2) - Invalid change level encountered.
*** NOTE (MIL-STD-1840A; 5.1.1.2) - Change level should be the word ORIGINAL
    or a Revision Number followed by a Change Level Number followed by
    a Change Level Date. They should be separated by a comma or space.
dteisu: NONE
*** ERROR (MIL-STD-1840A; 5.1.1.2) - Invalid date format encountered.
*** NOTE (MIL-STD-1840A; 5.1.1.2) - Date Format shall be a four digit year
    followed by a two digit month followed by a two digit day.
dstsys: EDCARS
dstdocid: MIL-STD-1840A Sample Raster Images
dstrelid: NONE
dtetrn: 19940120
dlvacc: NONE
filcnt: R5
ttlcls: Unclassified
doccls: Unclassified
doctyp: Unclassified
docttl: Auto-trol conversion to CALS group 4

2 error(s), 0 warning(s), and 2 note(s) were encountered
in Document Declaration File D001.

Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: DL123456789   99999AA   FL   00010001UMFEHN
dstdocid: 123456789
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: U
rtype: 1
rorient: 000,270
rpelcnt: 010188,007366
rdensty: 0300
notes: Auto-trol conversion to CCITT Group 4

Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4

Found file: D001R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: DL223456789   99999AA   FL   00010001UMFEHN
dstdocid: 223456789
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: Unclassified
rtype: 1
rorient: 000,270
rpelcnt: 003103,002364
rdensty: 0300
notes: Auto-trol conversion to CCITT Group 4

Saving Raster Header File: D001R002_HDR
Saving Raster Data File: D001R002_GR4

Found file: D001R003
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: DL323456789   99999AA   FL   00010001UMFEHN
dstdocid: 323456789
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: Unclassified
rtype: 1
rorient: 000,270
rpelcnt: 003077,002318
rdensty: 0300

notes: Auto-trol conversion to CCITT Group 4

Saving Raster Header File: D001R003_HDR
Saving Raster Data File: D001R003_GR4

Found file: D001R004
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: DL423456789   99999AA   FL   00010001UMFEHN
dstdocid: 423456789
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: Unclassified
rtype: 1
rorient: 000,270
rpelcnt: 003074,002311
rdensty: 0300
notes: Auto-trol conversion to CCITT Group 4

Saving Raster Header File: D001R004_HDR
Saving Raster Data File: D001R004_GR4

Found file: D001R005
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: DL523456789   99999AA   FL   00010001UMFEHN
dstdocid: 523456789
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: Unclassified
rtype: 1
rorient: 000,270
rpelcnt: 003053,002307
rdensty: 0300
notes: Auto-trol conversion to CCITT Group 4

Saving Raster Header File: D001R005_HDR
Saving Raster Data File: D001R005_GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

A total of 2 error(s), 0 warning(s), and 2 note(s) were
encountered in Document D001.

A grand total of 2 error(s), 0 warning(s), and 2 note(s) were
encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001     ' ---
/cals/caps/Bin/read1840A: writing data file
'aftb9492/MIL-STD-1840ASam/MIL-STD-1840ASam1.R.cci'.
/cals/caps/Bin/read1840A: writing data file
'aftb9492/MIL-STD-1840ASam/MIL-STD-1840ASam2.R.cci'.
/cals/caps/Bin/read1840A: writing data file
'aftb9492/MIL-STD-1840ASam/MIL-STD-1840ASam3.R.cci'.
/cals/caps/Bin/read1840A: writing data file
'aftb9492/MIL-STD-1840ASam/MIL-STD-1840ASam4.R.cci'.
/cals/caps/Bin/read1840A: writing data file
'aftb9492/MIL-STD-1840ASam/MIL-STD-1840ASam5.R.cci'.
-- declaration file indicates 0 files of type T
-- declaration file indicates 0 files of type G
-- declaration file indicates 0 files of type H
-- declaration file indicates 0 files of type Q
-- declaration file indicates 5 files of type R
-- declaration file indicates 0 files of type C
-- declaration file indicates 0 files of type X
-- declaration file indicates 0 files of type P
-- declaration file indicates 0 files of type Z
```

10. Appendix B - Detailed Raster Analysis

10.1 File D001R001

10.1.1 Output HiJaak Pro

10.2 File D001R002

10.2.1 Output RxHighlight

MODEL C-135		ITEM 01190						
			CAGE CODE 82918	REV. DATE 93-04-21	PL 661-13033		REV. LTR. -	
PARTS LIST	*BOEING*	CORPORATE OFFICES SEATTLE. WASHINGTON 98124	GROUP AVIONICS	CONTRACT NUMBER F34601-90-C-1336		SH 4	1	OF SH
LIST TITLE	DETAILS - BATTERY HOLD DOWN							

. . . APPLICATION LIST   . . .

PART NO.	NEXT ASSEMBLY	MODEL	SERIAL NUMBER	REV SYM
-1	661-13031	C-135	- DRAWING PICTURE SHEET 1	
-2	661-13024	C-135	- DRAWING PICTURE SHEET 1	

. . . REVISIONS   . . .

REV SYM	DESCRIPTION OF CHANGE	DATE	CLASS	CHG CONTROL NUMBER
-	NEW DRAWING - WBS 110GA ITEM 119. CHANGE EFF - C-135 (EO600) KFOO1-KFO50. DESIGN GROUP - J. HOWELL 526-4490. MFG ENG - K. PARKER R4PP 93/03/29. QUANLITY ASSURANCE - V. ANDREO 93/04/06	4-21-93		EA93-135A1-16

. . . ASSEMBLY BREAKDOWN LIST   . . .

QTY REQD	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION	NOTE CODE	NOTES	REV SYM
-	-1	RETAINING ROD	- NO	FIN F-8.07 STOCK .25 DIA X (11.0) 15-5PH ROD PER AMS5659 SOLUTION HEAT TREATED HT TR 150-170 KSI PER MIL-H-6875 (BAC5619 MANDATORY FOR BOEING AND ITS SUBCONTRACTORS)	
			DP	DRAWING PICTURE SHEET 1	
			GA	TAG PER MIL-STD-130 (BAC5307 MANDATORY FOR INTERNAL USE BY BOEING AND ITS SUBCONTRACTORS)	
-	-2	SUPPORT TEE	- NO	FIN F-12.37 STOCK 1.00 (1.6X1.8) BAC1527-64 EXTRUSION. 15-5PH PER AMS5659 OR 1.00 INCH THICK 15-6PH BAR STOCK PER AMS5659 HT TR 150-170 KSI PER MIL-H-6875 (BAC5619 MANDATORY FOR BOEING AND ITS SUBCONTRACTORS)	
			DP	DRAWING PICTURE SHEET 1	
			GA	RUBBER STAMP ALL CHARACTERS .12-.20 PER MIL-STD-130 (BAC5307 MANDATORY FOR INTERNAL USE BY BOEING AND THEIR SUBCONTRACTORS)	
-	D2-5000	PROCESS DOC	-		
-	MILSTD130	MIL STD	- VN	MIL-STD-130	
-	661-10004	SUBSTITUTION DWG	-		
-	BAC5300	PROCESS SPEC			

ASSY LIST (CONTINUED ON NEXT PAGE)